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STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			RAABE, CHRISTOPHER M	
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			2879	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,762

Applicant(s)

LIM ET AL.

Examiner

Christopher M. Raabe

Art Unit

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(Signature)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,2,13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tokito et al. (U.S. Patent 5780174).

With regard to claim 1

Tokito et al. disclose an organic electroluminescent device comprising: a transparent substrate (10 of fig 1); a semi-transparent layer formed on the transparent substrate (12 of fig 1); a first anode layer formed on the semi-transparent layer as a predetermined pattern (14 of fig 1); a cathode layer formed of a metallic total reflection layer on the first anode layer (22 of fig 1); and an organic layer formed between the first anode layer and the cathode layer, which includes at least an emitting layer (16 of fig 1), wherein an optical distance between a top surface of the semi-transparent layer and a bottom of the cathode layer is determined to be a least integer multiple of half the peak wavelengths of light of a predetermined set of colors (column 3, lines 28-32).

With regard to claim 2,

Tokito et al. disclose the organic electroluminescent device, wherein the optical distance between the top surface of the semi-transparent layer and the bottom of the cathode layer is a

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sum of products of refractive indices and thicknesses of the respective first anode layer and the organic layer (fig 1).

With regard to claim 13,

Tokito et al. disclose the organic electroluminescent device, wherein the transparent substrate is a glass substrate (column 9, line 50).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 3,4 rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. as applied to claim 1 above, and further in view of Dodabalapur et al. (U.S. Patent 5814416).

With regard to claim 3,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose an organic electroluminescent device further comprising a transparent spacer layer between the semi-transparent layer and the first anode layer.

Dodabalapur et al. do disclose a transparent spacer layer between the semi-transparent layer and the first anode layer (16 of fig 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the transparent spacer layer of Dodabalapur et al. into the organic electroluminescent device of Tokito et al. in order to optimize the distance between the reflecting layers without changing the thickness of the anode or emitting layers.

With regard to claim 4,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose an organic electroluminescent device wherein the optical distance between the top surface of the semi-transparent layer and the bottom of the cathode layer is a sum of products of refractive indices and thicknesses of the respective transparent spacer layer, the first anode layer, and the organic layer.

Dodabalapur et al. do disclose an organic electroluminescent device wherein the optical distance between the top surface of the semi-transparent layer and the bottom of the cathode layer is a sum of products of refractive indices and thicknesses of the respective transparent spacer layer, the first anode layer, and the organic layer (fig 1).

Utilizing the reasoning in the rejection of claim 3, it would have been obvious to one of ordinary skill in the art to incorporate the transparent spacer layer of Dodabalapur et al. into the organic electroluminescent device of Tokito et al.

5. Claims 5,6 rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. as applied to claim 1 above, and further in view of Komatsu et al. (U.S. Pre-grant Publication 2003/0117070).

With regard to claim 5,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose an organic electroluminescent device further comprising a second anode layer between a transparent substrate and a semi-transparent layer.

Komatsu et al. do disclose a second anode layer between a transparent substrate and a semi-transparent layer (12,10,13 of fig. 7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the second anode of Forrest et al. into the organic electroluminescent device of Tokito et al. in order to increase the number of holes contributing to light emission.

With regard to claim 6,

Tokito et al. disclose the organic electroluminescent device, wherein the optical distance between the top surface of the semi-transparent layer and the bottom of the cathode layer is a sum of products of refractive indices and thicknesses of the respective first anode layer and the organic layer (fig. 1).

6. Claims 7-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. as applied to claims 1,3,5 above, and further in view of Ito et al. (U.S. Patent 5652067).

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With regard to claim 7,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose an organic electroluminescent device comprising a metal oxide layer deposited on the top surface of the transparent substrate.

Ito et al. do disclose an organic electroluminescent device comprising a metal oxide layer deposited on the top surface of the transparent substrate (column 6, line 58 – column 7, line 14, and 14 of fig 6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the metal oxide layer of Ito et al. into the organic electroluminescent device of Tokito et al. in order to prevent deterioration of the electroluminescent device due to ultraviolet rays (column 6, line 58 – column 7, line 14).

With regard to claim 8,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose an organic electroluminescent device comprising a metal oxide layer deposited on the top surface of the transparent substrate.

Ito et al. do disclose an organic electroluminescent device comprising a metal oxide layer deposited on the top surface of the transparent substrate (column 6, line 58 – column 7, line 14, and 14 of fig 6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the metal oxide layer of Ito et al. into the organic electroluminescent device of Tokito et al. in order to prevent deterioration of the electroluminescent device due to ultraviolet rays (column 6, line 58 – column 7, line 14).

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With regard to claim 9,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose an organic electroluminescent device comprising a metal oxide layer deposited on the top surface of the transparent substrate.

Ito et al. do disclose an organic electroluminescent device comprising a metal oxide layer deposited on the top surface of the transparent substrate (column 6, line 58 – column 7, line 14, and 14 of fig 6).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the metal oxide layer of Ito et al. into the organic electroluminescent device of Tokito et al. in order to prevent deterioration of the electroluminescent device due to ultraviolet rays (column 6, line 58 – column 7, line 14).

With regard to claim 10,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose an organic electroluminescent device wherein the metal oxide layer is one selected from the group consisting of a SiO_2 layer, a TiO_2 layer, a Y_2O_3 layer, and a Nb_2O_5 layer.

Ito et al. do disclose an organic electroluminescent device wherein the metal oxide layer is one selected from the group consisting of a SiO_2 layer, a TiO_2 layer, a Y_2O_3 layer, and a Nb_2O_5 layer (column 6, line 58 – column 7, line 14).

Utilizing the reasoning in the rejection of claim 7, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the metal oxide layer of Ito et al. into the organic electroluminescent device of Tokito et al.

With regard to claim 11,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose an organic electroluminescent device wherein the metal oxide layer is one selected from the group consisting of a SiO₂ layer, a TiO₂ layer, a Y₂O₃ layer, and a Nb₂O₅ layer.

Ito et al. do disclose an organic electroluminescent device wherein the metal oxide layer is one selected from the group consisting of a SiO₂ layer, a TiO₂ layer, a Y₂O₃ layer, and a Nb₂O₅ layer (column 6, line 58 – column 7, line 14).

Utilizing the reasoning in the rejection of claim 8, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the metal oxide layer of Ito et al. into the organic electroluminescent device of Tokito et al.

With regard to claim 12,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose an organic electroluminescent device wherein the metal oxide layer is one selected from the group consisting of a SiO₂ layer, a TiO₂ layer, a Y₂O₃ layer, and a Nb₂O₅ layer.

Ito et al. do disclose an organic electroluminescent device wherein the metal oxide layer is one selected from the group consisting of a SiO₂ layer, a TiO₂ layer, a Y₂O₃ layer, and a Nb₂O₅ layer (column 6, line 58 – column 7, line 14).

Utilizing the reasoning in the rejection of claim 9, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the metal oxide layer of Ito et al. into the organic electroluminescent device of Tokito et al.

7. Claims 14,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. as applied to claim 1 above, and further in view of Shi et al. (U.S. Patent 5998805).

With regard to claim 14,

Tokito et al. disclose the organic electroluminescent device having a semi-transparent layer.

Tokito et al. do not disclose a semi-transparent layer being a thin metal layer.

Shi et al. do disclose a semi-transparent layer being a thin metal layer (column 7, lines 31-32).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the thin metal layer of Shi et al. into the organic electroluminescent device of Tokito et al. in order to reduce the number of layers required to produce the device.

With regard to claim 15,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose a thin metal layer is formed of one of silver and aluminum.

Shi et al. do disclose a thin metal layer formed of one of silver and aluminum (column 7, lines 31-32).

Utilizing the reasoning in the rejection of claim 14, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the thin metal layer of Shi et al. into the organic electroluminescent device of Tokito et al.

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8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. as applied to claim 14 above, and further in view of Ueno et al. (U.S. Patent 6228457).

With regard to claim 16,

Tokito et al. disclose the organic electroluminescent device.

Tokito et al. do not disclose a thin metal layer being formed of one of a silver-copper-gold alloy and a silver-palladium-copper alloy.

Ueno et al. do disclose a thin metal layer being formed of one of a silver-copper-gold alloy and a silver-palladium-copper alloy (column 2, lines 40-43)

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the alloy of Ueno et al. into the organic electroluminescent device of Tokito et al. in order to prevent degradation of the device (column 2, lines 55-67 of Ueno et al.).

9. Claims 17-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. as applied to claim 1 above, and further in view of Himeshima et al. (U.S. Patent 6469439).

With regard to claim 17,

Tokito et al. disclose the organic electroluminescent device, the first anode layer, the organic layer, and the cathode layer.

Tokito et al. do not disclose the first anode layer and the organic layer being formed as a stripe pattern, and the cathode layer being formed as a stripe pattern perpendicular to the stripe pattern of the first anode layer and the organic layer.

Himeshima et al. do disclose the first anode layer and the organic layer being formed as a stripe pattern, and the cathode layer being formed as a stripe pattern perpendicular to the stripe pattern of the first anode layer and the organic layer (8,6,2 of figs 10,11,12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Himeshima et al. into the organic electroluminescent device of Tokito et al. in order to provide a plurality of luminescent regions (column 5, lines 15-20 of Himeshima et al.).

With regard to claim 18,

Tokito et al. disclose the organic electroluminescent device, the first anode layer, the organic layer and the cathode layer.

Tokito et al. do not disclose the first anode layer being formed as a stripe pattern, and the organic layer and the cathode layer being formed as a stripe pattern perpendicular to the stripe pattern of the first anode layer.

Himeshima et al. do disclose the first anode layer being formed as a stripe pattern, and the organic layer and the cathode layer being formed as a stripe pattern perpendicular to the stripe pattern of the first anode layer (column 5, line 27 – column 6, line 18, and 8,6,2 of figs 10,11,12).

Utilizing the reasoning in the rejection of claim 17, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Himeshima et al. into the organic electroluminescent device of Tokito et al.

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10. Claims 19-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al. and Himeshima et al. as applied to claims 1,17,18 above, and further in view of Inoguchi et al. (U.S. Patent 5932327).

With regard to claim 19,

Tokito et al. disclose the organic electroluminescent device, the semi-transparent layer, the first anode layer, the organic layer, and the cathode layer.

From the rejection of claim 17, Himeshima et al. disclose a first anode layer, and an organic layer formed as a stripe pattern, and a cathode layer being formed as a stripe pattern perpendicular to the stripe pattern of the first anode layer and the organic layer.

Tokito et al. do not disclose a semi-transparent layer being formed as a stripe pattern perpendicular to the stripe pattern of the cathode layer.

Inoguchi et al. do disclose a semi-transparent layer being formed as a stripe pattern perpendicular to the stripe pattern of the cathode layer (9,2 of fig 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Inoguchi et al. into the organic electroluminescent device of Tokito et al. in order to provide a plurality of luminescent regions (column 5, lines 15-20 of Himeshima et al.).

With regard to claim 20,

Tokito et al. disclose the organic electroluminescent device, the semi-transparent layer, the first anode layer, the organic layer, and the cathode layer.

From the rejection of claim 17, Himeshima et al. disclose a first anode layer formed as a stripe pattern, and a cathode layer, and an organic layer being formed as a stripe pattern perpendicular to the stripe pattern of the first anode layer.

Tokito et al. do not disclose a semi-transparent layer being formed as a stripe pattern perpendicular to the stripe pattern of the cathode layer.

Inoguchi et al. do disclose a semi-transparent layer being formed as a stripe pattern perpendicular to the stripe pattern of the cathode layer (9,2 of fig 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Inoguchi et al. into the organic electroluminescent device of Tokito et al. in order to provide a plurality of luminescent regions (column 5, lines 15-20 of Himeshima et al.).

11. Claims 21-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al; Dodabalapur et al; Himeshima et al; and Inoguchi et al as applied to claims 3,17,19 above, and further in view of Himeshima et al. (same).

With regard to claim 21,

Tokito et al. disclose the organic electroluminescent device, the semi-transparent layer, the first anode layer, the organic layer, and the cathode layer.

From the rejection of claim 3, Dodabalapur et al. disclose the transparent spacer layer.

From the rejection of claim 19, Inoguchi et al. and Himeshima et al. disclose a semi-transparent layer, a first anode layer, and an organic layer being formed as a stripe pattern, and a cathode layer being formed as a stripe pattern perpendicular to the stripe pattern of the semi-transparent layer, the first anode layer, and the organic layer.

Tokito et al. do not disclose a spacer layer being formed as a stripe pattern perpendicular to the cathode layer.

Himeshima et al. do disclose a spacer layer being formed as a stripe pattern perpendicular to the cathode layer (3 of fig. 10).

Utilizing the reasoning in the rejection of claim 17, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Himeshima et al. into the organic electroluminescent device of Tokito et al.

With regard to claim 22,

Tokito et al. disclose the organic electroluminescent device, the semi-transparent layer, the first anode layer, the organic layer and the cathode layer.

From the rejection of claim 3, Dodabalapur et al. disclose the transparent spacer layer.

From the rejection of claim 20, Inoguchi et al. and Himeshima et al. disclose a semi-transparent layer and a first anode layer being formed as a stripe pattern, a cathode layer and an organic layer being formed as a stripe pattern perpendicular to the stripe pattern of the semi-transparent layer and the first anode layer.

Tokito et al. do not disclose a spacer layer being formed as a stripe pattern perpendicular to the cathode layer.

Himeshima et al. do disclose a spacer layer being formed as a stripe pattern perpendicular to the cathode layer (3 of fig 10).

Utilizing the reasoning in the rejection of claim 17, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Himeshima et al. into the organic electroluminescent device of Tokito et al.

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12. Claims 23-24 rejected under 35 U.S.C. 103(a) as being unpatentable over Tokito et al; Komatsu et al; Himeshima et al; and Inoguchi et al. as applied to claims 5,17,19 above, and further in view of Komatsu et al. (same).

With regard to claim 23,

Tokito et al. disclose the organic electroluminescent device, the semi-transparent layer, the first anode layer, the organic layer and the cathode layer.

From the rejection of claim 5, Komatsu et al. disclose the second anode layer.

From the rejection of claim 19, Inoguchi et al. and Himeshima et al. disclose a semi-transparent layer, a first anode layer, and an organic layer being formed as a stripe pattern, and a cathode layer being formed as a stripe pattern perpendicular to the stripe pattern of the semi-transparent layer, the first anode layer, and the organic layer.

Tokito et al. do not disclose a second anode layer being formed as a stripe pattern perpendicular to the cathode layer.

Komatsu et al. do disclose a second anode layer being formed as a stripe pattern perpendicular to the cathode layer (7 of fig 2).

Utilizing the reasoning in the rejection of claim 17, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Komatsu et al. into the organic electroluminescent device of Tokito et al.

With regard to claim 24,

Tokito et al. disclose the organic electroluminescent device, the semi-transparent layer, the first anode layer, the organic layer and the cathode layer.

From the rejection of claim 5, Komatsu et al. disclose the second anode layer.

From the rejection of claim 20, Inoguchi et al. and Himeshima et al. disclose a semi-transparent layer and a first anode layer being formed as a stripe pattern, an organic layer and a cathode layer being formed as a stripe pattern perpendicular to the stripe pattern of the semi-transparent layer and the first anode layer.

Tokito et al. do not disclose a second anode layer being formed as a stripe pattern perpendicular to the cathode layer.

Komatsu et al. do disclose a second anode layer being formed as a stripe pattern perpendicular to the cathode layer (7 of fig 2).

Utilizing the reasoning in the rejection of claim 17, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the configuration of Komatsu et al. into the organic electroluminescent device of Tokito et al.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5952037, 5949187, 5701055, and U.S. Pre-grant Publication 2004/0031965.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Raabe whose telephone number is 571-272-8434. The examiner can normally be reached on m-f 7am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CR


ASHOK PATEL
PRIMARY EXAMINER